

REMARKS

Claims 1-12 and 14-18 are pending.

Claims 1-12 and 14-18 are finally rejected.

35 USC 102(b)/ 103(a)

Claims 1-11, 14-16 and 18 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Yamada, US 5,334,519, when taken in view of Seki, US 5,352,828.

Yamada et al., US 5,334,519 relates to the biological production of an amide from a nitrile by the action of a nitrile hydratase which is obtained by culturing a microorganism of *R. rhodochrous* J-1 in the presence of a cobalt ion. All examples disclose a procedure wherein the amides are purified by recrystallization after removal of cellular material resulting in a pure acrylamide.

Seki et al., US 5,352,828 relates to a process for stabilizing an aqueous acrylamide solution under iron surface-contacting condition because acrylamide is apt to polymerization on contact with an iron surface (cf. col. 1, lines 45-48; col. 2, lines 22-28). Specifically, the examples show that when a high purity aqueous acrylamide solution (after separation of biological catalyst) is maintained at 50°C in the presence of an iron piece without adding a stabilizing agent, a polymer starts to form on the surface of the iron piece after about 3 hours of heating (cf. col. 4, lines 47-48; col. 5, lines 14-19). Furthermore, Seki teaches the stabilization of an aqueous acrylamide solution using water-soluble monocarboxylic acid salts.

Examiner agrees that Yamada does not teach the formation of a polymer (homopolymer or copolymer of methacrylamide) in the vessel comprising the ethylenically unsaturated monomer wherein the unsaturated monomer comprises cellular material and/or components of the fermentation broth. Yamada does not specifically teach the use of *Rhodococcus rhodochrous* NCIMB 41164 as the biocatalyst.

The examiner has also noted that in Example 4 (col. 12) of Yamada, the reference discloses reacting the bacterial cells in the presence of methacrylonitrile for 12 hours before any removal of cellular material from the reaction mixture. Seki teaches spontaneous polymerization of acrylamide solutions under various conditions.

Thus, according to the examiner, the solution of Yamada would inherently have polymerized to some extent during the incubation period. In the alternative, it would have been a matter of routine experimentation for one of ordinary skill in the art to have incubated the solution of Yamada under conditions that would have resulted in the spontaneous polymerization described by Seki.

In regard to the issue of inherency, the applicants direct the examiner to *SGS-Thomson Microelectronics, Inc. v. International Rectifier Corp.*, 32 USPQ2d 1496, 1503 (Fed. Cir. July 14, 1994) (unpublished), **cert. denied**, 513 U.S. 1052 (1994):

Before a reference can be found to disclose a feature by virtue of its inherency, one of ordinary skill in the art viewing the reference must understand that the unmentioned feature at issue is necessarily present in the reference. *Continental Can*, 948 F.2d at 1268-69, 20 USPQ2d at 1749-50. The test of inherency is not satisfied by what a reference "may" teach. *Id.*, 20 USPQ2d at 1749-50 ("Inherency . . . may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.") (emphasis added).

Such evidence must make clear that the missing descriptive matter is **necessarily** present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA Inc. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2D 1746, 1749 (Fed. Cir. 1991).

Example 4 of Yamada teaches that "when an addition of 1M of methacrylonitrile was added 5 hours after the initiation of the reaction, 10 M of methacrylamide **was produced in a conversion of 100%** 24 hours after the initiation of the reaction". See col. 12, lines 29-31.

Yamada clearly states that under his conditions of preparing methacrylamide, 100% conversion is achieved. **Thus, there is no polymerization.** Before a reference can be found to disclose a feature by virtue of its inherency, one of ordinary skill in the art viewing the reference must understand that the unmentioned feature at issue is **necessarily** present in the reference. Yamada clearly indicates that this is not the case. Thus the combination of Yamada and Seki cannot anticipate.

Furthermore, the applicants cannot agree that, it would have been a matter of routine experimentation for one of ordinary skill in the art to have incubated the solution of Yamada under conditions that would have resulted in the spontaneous polymerization described by Seki. Any such experimentation must come from *within the teachings of the prior art*.

There is certainly no motivation in Yamada to form a polymer from the produced monomer in the presence of cell material. The experimental conditions of Yamada, produce a monomer in 100% yield. Seki teaches it is well known that acrylamide solutions **may** polymerize by exposure to light or heat. Thus the examiner's combination is based on the possibility of accidental polymerization occurring in the solutions of Yamada. Applicants aver that this is at most a speculative or accidental occurrence. An accidental occurrence which has been shown by Yamada to not occur cannot make obvious the process of actively polymerizing an ethylenically unsaturated monomer in presence of cellular material and/or components of a fermentation broth.

In other words, the examiner has relied on the inventor's disclosure, to arrive at the present claim limitations. As examiner is aware this is improper. Applicants respectfully request reconsideration even though after Final Rejection.

Claims 1-12 and 14-18 are rejected under 35 USC 103(a) as obvious over Yamada, US 5,334,519 in view of Seki, US 5,352,828 and Leonova, Biotechnology, 1000, 88:231-241.

The combination of Yamada and Seki as argued above is not obvious. Examiner believes Seki teaches that, under most conditions, polymerization of a solution of acrylamide, an ethylenically unsaturated monomer, will occur. However, Yamada teaches that this statement is speculative at best. Example 4 of Yamada teaches that NO polymerization takes place as the monomer is produced in 100% yield.

Reconsideration and withdrawal of the rejection of claims 1-12 and 14-18 is respectfully solicited in light of the remarks *supra*.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 1-12 and 14-18 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Respectfully submitted,



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